



Treatment Protocol: SUBMERSION

Ref. No. 1225-P

Base Hospital Contact: Required for ALOC and decompression emergencies (Ref. 518).

1. Assess airway and initiate basic and/or advanced airway maneuvers prn (MCG 1302)
2. For cardiac arrest, treat per *TP 1210-P, Cardiac Arrest* ❶
3. Administer **Oxygen** prn (MCG 1302)
For suspected decompression illness ❷, provide **high-flow Oxygen 15L/min** and **CONTACT BASE**
4. Maintain supine if suspected decompression illness
5. Advanced airway prn (MCG 1302)
6. Initiate cardiac monitoring (MCG 1308)
7. Provide warming measures ❸ ❹
8. Establish vascular access prn (MCG 1375)
9. For altered level of consciousness, treat in conjunction with *TP 1229-P, Altered Level of Consciousness (ALOC)*
10. For respiratory distress, treat in conjunction with *TP 1237-P, Respiratory Distress* ❺
11. For poor perfusion or for suspected decompression illness:
Normal Saline 20mL/kg IV rapid infusion per *MCG 1309*; use warm saline if available ❻
For persistent poor perfusion, treat in conjunction with *TP 1207-P, Shock/Hypotension*



SPECIAL CONSIDERATIONS

- ❶ Cardiac arrest from drowning should be treated per [TP 1210-P, Cardiac Arrest](#). Ventilation is particularly important as the cardiac arrest is almost always due to respiratory failure. In cases of cold water drowning follow usual protocols for resuscitation while simultaneously rewarming the patient. Patients with hypothermia due to cold water drowning, may have good neurologic outcome despite prolonged resuscitation; resuscitative efforts should continue until the patient is rewarmed. Consultation with the Base Physician is required before consideration of termination of resuscitation in patients with suspected hypothermia.
- ❷ Decompression illness includes arterial gas embolism from barotrauma and decompression sickness (aka “the bends”) due to dissolved nitrogen in the blood coming out of solution. Decompression illness most frequently occurs in scuba divers after breathing compressed air at depth. While arterial gas embolism presents almost immediately after ascent, decompression sickness is often delayed and should be considered in any patient with symptoms (e.g. respiratory distress, ALOC, chest or body pain) within 24 hours of completing a dive. All patients with possible decompression illness need immediate evaluation for possible hyperbaric treatment. Per [Ref. 518](#), contact Base immediately to discuss.
- ❸ Warming measures should include moving the patient to a warm environment as quickly as possible, removing wet clothing/items, covering with an emergency/rescue blanket or other blankets/sheets, and using warm Normal Saline if available.
- ❹ Infants and small children are at high risk for hypothermia due to their large surface area to body mass ratio, reduced ability to shiver, and limited body fat.
- ❺ Rales may be present in patients after submersion/drowning due to direct lung injury and/or aspiration of water. This is not an indication of cardiogenic pulmonary edema (such as from congestive heart failure), which is extremely rare in children, and does not prohibit administration of IV fluids. IV fluids should be initiated and continued unless respiratory status worsens during administration.